

2. Click to display your Formulas ribbon. The Lookup button should appear in the Solutions group at the far right of the ribbon. (If this button is not available, you need to install the Lookup Wizard first, as described earlier in this section.) Click the button to run the wizard. In the first step of the wizard, verify that the entire list is selected; if necessary, adjust the selection. Click Next to continue.
3. In the next step (see Figure 20.11), choose the name of the column that contains the value you want to look up—in this case, Product Name. At the bottom of the dialog box, select any row from the drop-down list. Because this value will appear in an input cell, the exact value doesn't matter. Click Next to continue.
4. Specify that you want to copy the formula and lookup parameters to your worksheet, as shown in Figure 20.12.
5. Follow the wizard's prompts to position lookup formulas and related cells on the worksheet. The first value the Lookup Wizard produces is the label over the lookup column; it goes in D1. The second value is the one you'll change later to lookup values; in this case, it goes in cell A2. The third value contains the lookup formula and goes in D2.
6. Repeat steps 2–5 to add the formula that looks up information for other columns. For example, to look up information in the Price column, create a lookup formula and add it to cell C2.

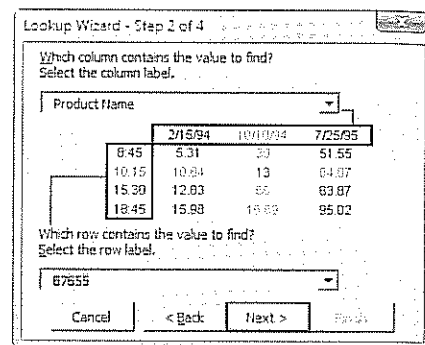


Figure 20.11

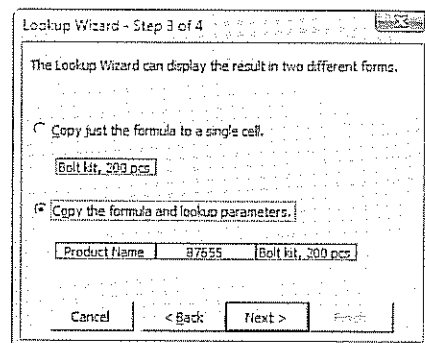


Figure 20.12

TIP FROM

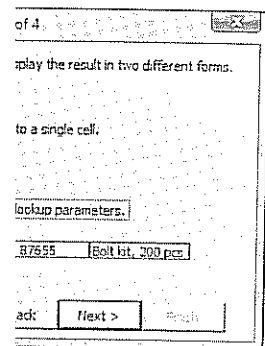
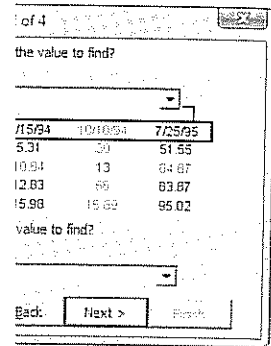
EQ & Woody

Add just the lookup formula to your worksheet when you want to perform a different lookup in every row of your table. For example, a golf tournament coordinator might keep a list of each player's current handicap on one worksheet. Using a list on a separate worksheet for each tournament, the coordinator could enter the date, the player's name, and the raw score in the first three columns. A lookup formula in the fourth column of every row would find the current handicap on the other worksheet, based on the member's name in the first column. Use an additional calculated field to figure the net score by subtracting the looked-up handicap from today's score.

MATHEMATICAL CALCULATIONS

Given Excel's extensive mathematical capabilities, it's only natural that the list of worksheet functions includes 60 mathematical functions. Several handle advanced trigonometry calculations (COS, TAN, SIN, ACOS, ATAN, and ASIN, for example), and the PI function displays the value of pi to 15 decimal places.

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the fourth column of
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to figure the net score

the list of worksheet
trigonometry calcula-
tion displays the value

Use the **ROUND** and **TRUNC** functions to transform values for use in calculations. For example, if cell C16 contains the value 23.5674, use `=ROUND(C16,2)` to convert that value to 23.57; the second argument defines the number of decimal places. Use `=TRUNC(C16,2)` to lop off all digits beyond the number of decimal places you specify in the second argument. Because this function truncates the value rather than rounding it, the result is 23.56 rather than 23.57.

NOTE

Although you can use cell formats to change the way information is displayed in a cell, these formats don't change the underlying information stored in the cell. Use the **ROUND** and **TRUNC** functions when you want to perform calculations based on a specific level of precision.

The **MOD** function divides one value by another and returns a remainder. One interesting use of this formula is to determine whether a given year is a leap year. If cell A1 contains the year to be tested, enter this formula:

```
=IF(OR(MOD(A1,400)=0,AND(MOD(A1,4)=0,MOD(A1,100)<>0)), "Leap Year", "Not a Leap Year")
```

This tricky formula uses the logical operators **IF**, **OR**, and **AND** to test whether cell A1 is divisible by 400 or is both divisible by 4 and not divisible by 100. If either condition is true, it returns the text "Leap Year"; otherwise, it returns the text "Not a Leap Year."

To display the *absolute value* of a formula, so the result is always a positive number, use the **ABS** function. `=ABS(A14-A16)`, for example, always returns the difference between the values in these two cells as a positive number, even if A16 is larger than A14.

One of the most interesting functions in this group is **SUMIF**(range,criteria,sum_range); use it to total a range of numbers based on whether they meet criteria you define. For example, if the range B2:B20 contains the names of salespeople and the range C2:C20 contains invoice amounts, use the following formula to calculate the total for all invoices from Debbie McKenna:

```
=SUMIF(B2:B20,"Debbie McKenna",C2:C20)
```

PERFORMING STATISTICAL ANALYSES

Excel includes a huge number of statistical functions, including such widely used measures as standard deviation (**STDEV**), normal distribution (**NORMDIST**), Chi test (**CHITEST**), and Student's t-test (**TTEST**). As with the financial functions, these are most useful to people who have a firm grounding in the principles of statistical analysis, but a handful are applicable to users with a general business background.

Excel includes not one but three functions for working with a set of values. **AVERAGE** returns the arithmetic mean (the total of all values, divided by the number of entries in the list); **MEDIAN** returns the value in the middle of the list; and **MODE** returns the value that occurs most frequently. Depending on the distribution of data in a sample, any one of these three functions might be more or less appropriate.